JUMBO MINING CO.

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Bureau of Water Pollution Control
Ground Water Protection Section
Department of Health

P.O. Box 16690
Salt Lake City, Utah 84116

Attn: Mr. Mark Novak RE: Reply to letter 3-25-91

Enclosed is the additional information required by the Bureau.

EXISTING H-7 & LG-2 HEAPS

As stated in our letter 2-25-91, a feasilbilty study on these heaps will be made during or after the 60 day test. Jumbo will apply for and amended permit after the test if we decide it is feasible and economical. At this time we are only applying for a ground water permit for the new heap.

NEW HEAP DESIGN

Our consulting engineering firm, CBC Enviro, has already discussed heap design technology with the Bureau and have visited other heap leach operations in Utah. Preliminary plans for the new heap are finished and will be submitted to the Bureau shortly.

SAMPLING OF THE PERCHED AQUIFER

Additional samples of other drill holes (not previously sampled) that intersected the perched aquifer were collected and a copy of the results by Ford Chemical is attached. Two holes (MH-1 & MH-31) were caved-in (no sample) and one hole (MH-9) was dry. Hole locations were submitted on the various plates in our letter 2-25-91. The Busby Spring and water well (source of make-up water) were sampled and the results are also attached.

None of the drill holes were completed with casing and screen. Only a 2-foot long PVC pipe was inserted in the collar of each hole in order to prevent surface runoff from entering the hole.

CLOSURE PLANS

In general, closure for the new heap and the existing heaps under Jumbo's responsibility will consist of the following:

1. Heaps will be rinsed with re-cycled fresh water until the effluent is below the protection limits for CN. There will be alternating periods of rinsing and resting in order to take advantage of natural degradation. Rinse rates will vary between high volume (to assure complete saturation and less possibility of short circuiting) and low volume to assure that the effluent from clay zones (slow diffusion of CN of saturated solids) is not being greatly diluted with effluent from high permeability zones. During the later part of the resting period, the draindown will be sampled (draindown water would be from areas having slow diffusion rates). If high CN occurs if the effluent, then neutralization chemicals (e.g. HCL, peroxide, etc.) will be added.
2. Any rock which is to be recontoured off the pad liner will be sampled and evaluated by the Meteoric Water Mobility Test (see exhibit A for procedure). The results of the test will determine if additional rinsing and/or neutralization is needed.
3. Top soiling for reclamation will provide a partial capping and diversion of meteoric waters.
4. Pond sludge will be sampled and a Meteoric Water Mobility (MWM) test preformed.
5. All leak detection systems and monitoring holes will be checked regularly during closure.

Once Jumbo shows that the rinsing effluent (especially during high rinsing rate applications which simulates the 100yr rain) and the MWM test results are under the protection limits, then reclamation will occur with no fear of contamination to ground water.

SINCERELY

Dave Hartshorn

David Hartshorn
Jumbo Mining